REMARKS

Claims 1-30 are pending in the application.

Claims 1, 4 and 11-13 over Hoogendoorn

In the Office Action, claims 1, 4 and 11-13 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Hoogendoorn et al., U.S. Patent No. 5,559,642 ("Hoogendoorn"). The Applicants respectfully traverse the rejection.

Claims 1, 4 and 11-13 recite, *inter alia,* a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions.

Hoogendoorn appears to disclose digital information recorded in a track on a tape-like magnetic record carrier that can be read out again when the record carrier is transported in a specific direction (Abstract). A first or second equalization filter is used during reproduction so as to realize a first and second filtering of the information that is read out (Hoogendoorn, Abstract). A first embodiment utilizes two filters F1, F2 and a switch (Hoogendoorn, Fig. 8a; col. 9, lines 19-20). In response to a control signal, filters F1 and F2 are alternately chosen to filter an output of a reproducing head (Hoogendoorn, col. 9, lines 21-31). A second embodiment utilizes a single digital filter to which a set of filter coefficients are applied (Hoogendoorn, col. 9 lines 32-36). A selector selects filter coefficients from two memories 55 and 56 (Hoogendoorn, col. 9, lines 36-38).

Hoogendoorn's second embodiment discloses a digital filter to which a set of filter coefficients are applied. Coefficients are **NOT** transfer functions. A transfer function is a term of art. Hoogendoorn fails to disclose a transfer function, much less a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions, as claimed by claims 1, 4 and 11-13.

Moreover, claims 1, 4 and 11-13 recite, *inter alia,* a second digital filter receiving an output from a first programmable filter.

Hoogendoorn discloses a filtering system that utilizes a single filter at a time. A switch is used to either switch between two filters (first embodiment) or to load a single filter with coefficients (second embodiment). Hoogendoorn fails to disclose a second filter connected to a first filter, much less a second digital filter receiving an output from a first programmable filter, as claimed by claims 1, 4 and 11-13.

Accordingly, for at least all the above reasons, claims 1, 4 and 11-13 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claims 2, 3 and 10 over Hoogendoorn in view of Simmons

In the Office Action, claims 2, 3 and 10 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Hoogendoorn in view of Simmons et al., U.S. Patent No. 6,195,414 ("Simmons"). The Applicants respectfully traverse the rejection.

Claims 2, 3 and 10 are dependent on claim 1, and are allowable for at least the same reasons as claim 1.

Claims 2, 3 and 10 recite, *inter alia,* a first programmable filter capable of being programmed to implement any of a **plurality** of filter transfer functions and a second digital filter receiving an output from a first programmable filter.

As discussed above, Hoogendoorn fails to disclose a second filter connected to a first filter, much less a second digital filter receiving an output from a first programmable filter, as claimed by claims 2, 3 and 10.

The Office Action relies on Simmons to allegedly make up for the deficiencies in Hoogendoorn to arrive at the claimed invention. The Applicants respectfully disagree.

Simmons appears to disclose an apparatus and method for accurately simulating a digital facility in a PSTN (Abstract). A digital receive filter is utilized by the apparatus with an 8^{th} order infinite impulse response filter with a lattice structure and a 7^{th} order finite impulse response filter (Simmons, col. 11, lines 49-59).

Simmons discloses use of an 8th order infinite impulse response filter with a lattice structure connected to a 7th order finite impulse response filter. The second filter uses conventional (sin x)/x compensation. Simmons fails to disclose use of transfer functions, much less a first programmable filter capable of being programmed to implement any of a **plurality** of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claims 2, 3 and 10.

Neither Hoogendoorn nor Simmons, either alone or in combination, disclose, teach or suggest a first programmable filter capable of being programmed to implement any of a **plurality** of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claims 2, 3 and 10.

Accordingly, for at least all the above reasons, claims 2, 3 and 10 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claim 5 over Hoogendoorn in view of Yashima

In the Office Action, claim 5 was rejected under 35 U.S.C. §103(a) as allegedly being obvious over Hoogendoorn in view of Yashima et al., U.S. Patent No. 5,953,431 ("Yashima"). The Applicants respectfully traverse the rejection.

Claim 5 is dependent on claim 1, and is allowable for at least the same reasons as claim 1.

Claim 5 recites, *inter alia,* a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions and a second digital filter receiving an output from a first programmable filter.

As discussed above, Hoogendoorn fails to disclose a second filter connected to a first filter, much less a second digital filter receiving an output from a first programmable filter, as claimed by claim 5.

The Office Action relies on Yashima to allegedly make up for the deficiencies in Hoogendoorn to arrive at the claimed invention. The Applicants respectfully disagree.

Yashima appears to disclose a system used to avoid degradation of an acoustic signal radiated from the opening of a ducted horn (Abstract). A Least Mean Square (LMS) algorithm is used in the calculation of a coefficient of data (Yashima, col. 13, lines 11-40).

Yashima discloses use of a LMS algorithm for analysis of an acoustic signal radiated from the opening of a ducted horn. Yashima fails to even mention use of a LMS algorithm as related to a transfer function, much less a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claim 5.

Neither Hoogendoorn nor Yashima, either alone or in combination, disclose, teach or suggest a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claim 5.

Accordingly, for at least all the above reasons, claim 5 is patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claims 6-9 over Hoogendoorn in view of Boyd

In the Office Action, claims 6-9 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Hoogendoorn in view of Boyd et al., U.S. Patent No. 6,438,162 ("Boyd"). The Applicants respectfully traverse the rejection.

Claims 6-9 are dependent on claim 1, and are allowable for at least the same reasons as claim 1.

Claims 6-9 recite, *inter alia,* a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions and a second digital filter receiving an output from a first programmable filter.

As discussed above, Hoogendoorn fails to disclose two filters that pass a signal therebetween, much less a second digital filter receiving an output from a first programmable filter, as claimed by claims 6-9.

The Office Action relies on Boyd to allegedly make up for the deficiencies in Hoogendoorn to arrive at the claimed invention. The Applicants respectfully disagree.

Boyd appears to disclose an apparatus and method for restoring digital pulses within a data transmission system which have degraded due to attenuation and distortion (Abstract). The apparatus and method are suitable for high-speed applications such as T1 and E1, requiring minimal configuration by a user (Boyd, col. 36-40). Digital pulses are restored by passing a signal through an equalizer having a controllable transfer function (Boyd, Abstract).

Boyd discloses use of a **single** controllable transfer function in restoring digital pulses received over a T1 and E1 transmission medium. Boyd fails to disclose a **plurality** of transfer functions, much less a first programmable filter capable of being programmed to implement any of a plurality of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claims 6-9.

Neither Hoogendoorn nor Boyd, either alone or in combination, disclose, teach or suggest a first programmable filter capable of being programmed to implement any of a **plurality** of filter transfer functions and a second digital filter receiving an output from a first programmable filter, as claimed by claims 6-9.

Accordingly, for at least all the above reasons, claims 6-9 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claims 14-17, 20-25 and 27-30 over Simmons

In the Office Action, claims 14-17, 20-25 and 27-30 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Simmons. The Applicants respectfully traverse the rejection.

Claims 14-17, 20-25 and 27-30 recite, *inter alia,* adaptively adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal.

Simmons appears to disclose an apparatus and method for accurately simulating a digital facility including impairments in a public switched telephone network (PSTN) (Abstract). A source of the bit stream is a digital trunk, e.g., T1 or E1 lines (Simmons, col. 6, lines 43-46).

The Office Action equates Simmons' element 340 to Applicants' claimed first digital filter and Simmons' element 343 to Applicants' claimed adaptively adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal. The Applicants respectfully disagree.

Simmons discloses use of a fixed 8^{th} order infinite impulse response filter (item 340) with a lattice structure connected to a 7^{th} order finite impulse response filter (item 343). The second filter uses conventional (sin x)/x compensation. Simmons fails to disclose either filter is able to adaptively adjust or matches an inverse response, much less adaptively adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal, as claimed by claims 14-17, 20-25 and 27-30.

Accordingly, for at least all the above reasons, claims 14-17, 20-25 and 27-30 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claims 18, 19 and 26 over Simmons in view of Hoogendoorn

In the Office Action, claims 18, 19 and 26 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Simmons in view of Hoogendoorn. The Applicants respectfully traverse the rejection.

Claims 18, 19 and 26 are dependent on claim 14, and are allowable for at least the same reasons as claim 14.

Claims 18, 19 and 26 recite, *inter alia,* adaptively adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal.

As discussed above, Simmons fails to disclose a filter that is able to adaptively adjust or matches an inverse response, much less adaptively

adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal, as claimed by claims 18, 19 and 26.

Hoogendoorn appears to disclose digital information recorded in a track on a tape-like magnetic record carrier that can be read out again when the record carrier is transported in a specific direction (Abstract). A first or second equalization filter is used during reproduction so as to realize a first and second filtering of the information that is read out (Hoogendoorn, Abstract). A first embodiment utilizes two filters F1, F2 and a switch (Hoogendoorn, Fig. 8a; col. 9, lines 19-20). In response to a control signal, filters F1 and F2 are alternately chosen to filter an output of a reproducing head (Hoogendoorn, col. 9, lines 21-31). A second embodiment utilizes a single digital filter to which a set of filter coefficients are applied (Hoogendoorn, col. 9 lines 32-36). A selector selects filter coefficients from two memories 55 and 56 (Hoogendoorn, col. 9, lines 36-38).

Hoogendoorn discloses applying various coefficients to a filter. The coefficients are NOT chosen to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal , as claimed by claims 18, 19 and 26.

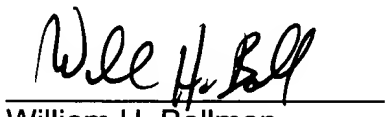
Neither Simmons nor Hoogendoorn, either alone or in combination, disclose, teach or suggest adaptively adjusting an output of a first digital filter to accurately match an inverse response of a transmission channel used to transmit a received T1/E1 data signal, as claimed by claims 18, 19 and 26.

Accordingly, for at least all the above reasons, claims 18, 19 and 26 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,



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